

GEORGE W. YORK, Editor.

AMERICAN BEE JOURNAL.

ESTABLISHED IN 1861 OLDEST BEE-PAPER IN AMERICA
DEVOTED EXCLUSIVELY TO THE INTERESTS OF HONEY-PRODUCERS

39th YEAR.

CHICAGO, ILL., DECEMBER 28, 1899

No. 52.

Some of those who attended the Convention of the U. S. Bee-Keepers' Association

Held at Philadelphia, Pa., Sept. 5, 6 and 7, 1899.



CONVENTION PROCEEDINGS

Report of the Proceedings of the 30th Annual Convention of the United States Bee-Keepers' Association, Held at Philadelphia, Pa., Sept. 5, 6 and 7, 1899.

BY DR. A. B. MASON, SEC.

(Continued from page 805.)

THIRD DAY—EVENING SESSION.

The evening session was called to order by Pres. Whitcomb, and Dr. Miller sang "Dot Happy Bee-Man," after which a paper was read by Mr. F. Hahman, secretary of the Philadelphia Bee-Keepers' Association, on "Our Pursuit as Viewed by an Amateur."

Those in attendance on the sessions of the convention had become so well acquainted with Mr. Hahman in his untiring efforts to provide for the comfort of the delegates, that when he stepped forward to read his paper, he was greeted with most hearty applause by every one present, to which he, in a humorous way, responded by saying, "I am glad you applauded *before* I read my paper," inferring that no applause would be accorded him at its close.

Mr. Hahman—I wish to state here that I did not write this paper to-day. I wrote it last week, and I want to say that Mr. Selser, in his paper, *did* mention beeswax as a product of the bee, but he pretty nearly forgot it. I was also pleased to hear last evening that away in the time past hives were used. Long before they used glass isinglass was used. The amateur breeds bees for beauty.

Our Pursuit as Viewed by an Amateur.

There is one side of apiculture which has not been exploited in our bee-periodicals to the extent which has obtained in the race for perfection, as viewed by the professional bee-keeper, and yet a great part of our devotees are of the amateur class—men and women who keep bees chiefly for pleasure and study, and only incidentally to produce honey. That this class of bee-keepers view our pursuit somewhat differently from the man in pursuit of dollars and cents must be obvious.

The amateur is not tied down to make his living, either partially or wholly, from the management of his colonies, and follows the fad, if we may so term it, mainly for the pleasure, recreation, instructive study and genuine enjoyment which the keeping of a limited number of colonies affords. It will thus be seen that the keeping of a few colonies of bees offers many inducements to him who looks after them, and, unlike other hobbies, is scarcely ever a drain on his purse, on the contrary it frequently augments the same.

Bee-keeping appeals to the amateur, first, in the study of the insect in a scientific capacity, its anatomy and object and function or natural history. It is superfluous for me to enter into details of a study, which has been so carefully and ably elucidated in Frank Cheshire's great work, but the enjoyment derived by every bee-keeper from the investigation of the marvellous structure of our bee, and the adaptability of all its organs to the uses for which they are intended is a never-ceasing source of enlightenment of the sublime in creation. The entertainments of microscopical observation of our Philadelphia Bee-Keepers' Association during the winter months, I feel safe in saying have been an enjoyment as well as instruction to its members, for there is sufficient zest in the pursuit of this study, in determining the status of a few of the organs of our pets, which, despite the careful observation and investigation of scientists, seem to baffle scrutiny in determining their exact and positive service. Another side-light of the natural history of bees is their unconscious labor in the fertilization of flowers, making a rather pleasant study of their habits in spring and summer time.

Fully as instructive and enjoyable is the study and observation of the interior economy of the hive; perhaps I may add that it is the chief attraction holding the amateur steadfast in the rank of the bee-keeping fraternity. Nowhere has the fascination of this part of bee-keeping been expressed in more beautiful language than in Rev. Lang-

stroth's masterful work—he who was the father of bee-keeping, whose name shall endure for all time.

In viewing bee-keeping from its practical side, there are only a few minor considerations which do not also apply to the professional's view for its betterment.

One of the points which has quite a future, and has not received the thoughtful, fostering care and impetus it deserves, is the production of beeswax. The commercial value of beeswax has been rather overlooked by bee-keepers. The persistency with which this product of the bee has been adulterated in commerce, and the untiring efforts put forth by chemists to find a substitute for it, as used in industrial arts, are conclusive, tho negative proof of its value. If the same thought and experiment as applied to increasing the production of honey per colony were applied to the production of beeswax, I believe the possibility of managing apiaries for this product alone would result therefrom.

The decadence of the observatory hive is something which the amateurs should rectify. It is strange that this hive should have almost disappeared from our supply manufacturers' catalogs. There ought to be no well-regulated apiary, whether it is a professional's or amateur's, without at least one of these hives. Its very name is prophetic. By its use much knowledge of the habits of bees can be obtained which never can be acquired in any other way, notably the action of the bees in comb-building and the elaboration of wax.

The breeding of queens has reached a point where the requirements of professional and amateur seem to diverge hereafter. It now appears that the professional bee-keeper will want queens strictly for business only; the keen competition in producing honey for the market has made this an imperative necessity, and a correct one also. Not so with the amateur; he wants bees for beauty, a few pounds of honey more or less does not dim his vision—he wants fine-looking bees. We all know that the beautiful five-banded golden Italians, and the gentle and handsome albino variety, do not embody what might be called the acme of honey-gatherers, but I think all of my fellow-members have noted, at some of our local gatherings during the summertime, the pride with which the owner of these handsome bees has exhibited them, and the longing look cast their way by those less fortunate in possessing their equal.

We of the amateur class are with few exceptions fond of bees presenting a beautiful appearance, and the queen-breeder must not lose sight of this fact in catering to the wants of this large class of bee-keepers in the future.

The improvement of our stock is of vital importance, and the improvement attained up to date is truly marvellous, considering pranks which Nature plays on us in the fertilization of queens.

In the breeding of animals and plants man's superior knowledge and skill have wrought wonderful changes in adapting both to his uses and profit. He has, for instance, produced horses for speed, and horses for draft purposes, which differ as widely in appearance as they do in the uses for which they are intended, both kinds having been produced by careful selection of adaptable breeding-stock. In the matter of cattle, numerous breeds have been developed, and as regards fowl, the different strains and varieties are almost too numerous to mention.

In the vegetable kingdom the improvement attained by the horticulturist from the fertilization of flowers and the raising of seedlings, resulting from the skill of his selection of parentage has been truly startling, and vastly surpasses the changes produced in the animal kingdom. A comparison between our cultivated flowers, fruits and vegetables, with their progenitors, growing in their native habitat, will exhibit changes which are not easy of comprehension, and seem doubtful of veracity to the beholder.

With facts thus accomplished by careful selection and breeding, the possibilities of improving our strains of bees would be a foregone conclusion, provided the apiarist were able to control the mating of queens and the selection of individual drones for that purpose. We are aware how the workers in one colony are not all alike, and the queens produced from one mother do not resemble each other exactly; so do the drones of a colony differ in many essentials, and I believe more so than do the workers. If it were possible to select the breeding-drones, not as a body, but individually, it would not be long before we would have bees with longer tongues, bees with greater wing-power, and bees better adapted to withstand atmospheric changes of temperature. This problem ought to be, must be, and in all probability will be, solved at some future date. With the present uncertain practice of selecting the drones of one colony as a body, in the hope that they will constitute the stock for

breeding purposes, it appears to me that the drones are judged too much by the merits of their sister workers. It must be borne in mind that the drones of a colony seem to be the product of a previous generation, and the characteristics of the colony from which the queen has sprung is the one to look to for a guide of the collective value of her drones. How many queen-breeders keep any such record? I think but few. In the rapid interchange of breeding-mothers thru the mails, what guide have we of her parentage, or, rather, of her fraternal comparisons, of which her drones appear to be a reproduction? I can safely answer, not much to boast of; we work considerably in the dark; but we must seek the light, and endeavor to improve our understanding, and progress will crown our efforts whether we are professional or amateur bee-keepers.

F. HAHMAN.

Mr. Selser—I would like to say that this question of controlling bees and improving the stock is an important one. I was struck when going to Mr. Hahman's house to see black bees, and when I left the neighborhood I made up my mind that he owned about all the yellow bees in the neighborhood; I asked him how he managed it with so many black bees around him. He said he kept a large number of drones.

Dr. Mason—What methods have been proposed by which we can control this matter of fertilization? In the Bee-Keepers' Review there appears a method that seems to be very practical. Confine the drones you want to use, and the queens you want fertilized, and put them in the cellar until the time other drones are thru flying for the day; then let free the drones and queens you have confined, and the probabilities are that the queens will be fertilized by the confined drones.

Mr. Stone—Why not use drone-traps?

Dr. Mason—They don't confine the neighbor's drones.

Mr. Stone—I want to mention another matter, and perhaps I can get a little light. In our State (Ill.) we need a foul-brood law, and I believe it was the amateur bee-keepers that defeated it. We greatly need such a law.

J. H. M. Cook—The amateur bee-keeper, in the sense of this paper, is one who studies the habits and work of the bee; but the careless farmer who keeps a few bees is the one who does the damage.

President-elect E. R. Root gave notice that the next annual meeting of the Association will be held in Chicago, the time of the meeting to be given later, but will be during the G. A. R. encampment.

Mr. Secor, chairman of the Committee on Resolutions, presented the report of the committee as follows:

REPORT OF THE COMMITTEE ON RESOLUTIONS.

WHEREAS, It has pleased the Ruler of the Universe to remove one of our loved and honored members from his field of earthly activity; therefore, be it

Resolved, That in the death of our brother, Miles Morton, of New York, the industry of bee-keeping has sustained the loss of an active and capable honey-producer, a master mechanic, and an honest man of high character.

Resolved, That the labors of George W. York, editor of the American Bee Journal, in the prosecutions for the adulteration of honey, are appreciated by this Association, and we bespeak for his journal the hearty support of all bee-keepers, as a partial remuneration for his disinterested services.

Resolved, That the thanks of this Association are due, and they are hereby heartily tendered to the Philadelphia Bee-Keepers' Association for the uniform kindness and courtesy shown to our members during this convention, and especially for the unceasing activity and kindness of W. A. Selser and F. Hahman, of the Entertainment Committee, in looking after our comfort while in this beautiful city. The Philadelphia Bee-Keepers' Association has confirmed and emphasized the fact that we are in the "City of Brotherly Love."

The services of Mrs. Wilber W. Miller, who has so ably read the papers before this convention, are hereby acknowledged. She has given this Association great pleasure, and we desire to express our thanks.

Miss Hohlrein, of St. Louis, who has so skillfully played the accompaniments to the songs sung, is entitled to grateful acknowledgements.

EUGENE SECOR,
E. R. ROOT,
W. Z. HUTCHINSON, } Committee.

The resolutions were approved by a rising vote.

Mr. Abbott—I most heartily agree with the committee about the entertainment. I have never attended a convention anywhere where I felt so much at home as I have here. Every effort has been put forth for our comfort, and those efforts have proved a success.

Dr. Mason—I wish to emphasize the resolutions. I don't think we can speak too highly of our entertainers. I thought those fellows in the "wild and woolly West" did everything up in grand style, and they most certainly did well in providing for the comfort of the delegates who attended the conventions at Lincoln and Omaha, but if there were not any of them here, I should say the Philadelphia bee-keepers had "knocked the socks clean off of them." As Dr. Miller says, each year we can do better.

Pres. Whitcomb—Remembering the two meetings that have been held in Nebraska, I realize how hard Mr. Hahman and others here have worked. I trust that we will all meet again in Chicago in 1900.

The convention then adjourned.

A. B. MASON, Sec.

The Proceedings of the Utah Bee-Keepers' Convention.

REPORTED BY GEO. E. DUDLEY.

The Utah Bee-Keepers' Association met Nov. 24, 1899, in Salt Lake City, with Pres. E. S. Lovesy in the chair, and Geo. E. Dudley was appointed secretary *pro tem*.

The first subject for consideration was the loss of bees during summer, by the bees crawling about outside of the hives and dying in great numbers. Mr. Cornwall reported that he had this trouble among his bees every year, beginning about the middle of August, and lasting about six weeks. It seemed to be the judgment of several present that the smoke from the smelters caused this trouble. So far no remedy had been found that would relieve this difficulty.

The wintering of bees was next discussed. Mr. Lovesy gave several illustrations in proof that bees must have ventilation in winter. If they are sealed down air-tight they would sweat, the bees and combs be damp, the air would become foul, and this would make the bees too weak to seek their stores; they would thus die of starvation. He said he found this to be the case every spring, while bees that had sufficient ventilation usually lived.

Foul and pickled brood was next considered. Mr. Hone gave his experience with pickled brood. He used salt and sulphur as a remedy, and cured the trouble. He thinks the dairy business is injuring the bee-industry by feeding the sweet clover and other flowering plants off the land.

Mr. Hone also related some of his experience with foul brood. He spoke of cleaning the hives thoroly, and not giving them the chance to become foul.

Mr. Schach said that he had cured pickled brood by a free use of dry slackt lime and salt, scattering all thru the hive. He said it cleansed and purified the bees, and kept down disease.

Mr. Lovesy, in giving his experience with foul brood, opened up a new field for investigation. He said that in localities where foul or pickled brood was prevalent he had examined many apparently healthy colonies, with no sign of any disease about them other than sometimes a few or more cells of the brood showed a wrong or back presentation. He said that later they turned out either foul or pickled brood if left alone. He gave it as his opinion that the larvae were already diseased, and in their agency turned over with their heads in the bottom of the cells, and died in that position, as it was impossible for them to hatch out. He said it was easier to treat the disease at this stage than to wait for further development.

Secretary Fagg said that twice this season he had caught the bees killing their old queen, and concluded that the subject of requeening could be left to the bees.

Mr. Bangitor said that last year he had 35 colonies, increased to 82, and took off 10,000 pounds of honey; but this year from the 82 colonies he got only 700 pounds, while some of them died thru the winter and spring. He believed that many of his bees were poisoned by spraying with Paris-green.

Mr. Hone said a weak colony having a queen could be placed over a strong colony and they would not kill each other, but would live and build up by the upper colony receiving heat from the lower.

All present favored the sale of comb honey by the case instead of by weight.

In his address delivered at the meeting, Pres. Lovesy said:

"As far as the bee-industry is concerned, this has been a peculiar season, and in many parts of the State it has been anything but a profitable one for the bee-keepers; while in some localities the winter losses were not so severe, the wet, cold, backward spring was very destructive, some bee-keepers suffering heavily, and even those bees that were left were so reduced that while many of them built up, and some of them did very well, others lingered along, and some of them died off thru the summer. But it is pleasant to note that in the south and southeast parts of the State, as also in parts of the southwest, the conditions have been more favorable. Some bee-keepers in those localities inform me that their bees never did as well before as they have this year. I have received reports from different parts of the State, ranging all the way from nothing up to 282½ pounds per colony, spring count. While a few have reported a scant honey-flow, many have reported that it has been abundant; thus the fault, as a rule, where success was not obtained, seems to have been climatic conditions, and a lack of strong colonies to collect the flow of honey; the principal cause of these conditions being the unusually severe weather in the month of May in the north, and in some portions of the central part of the State. As a rule, the honey crop is excellent in quality, and the prices are fair, with a good demand.

"I have received many complaints in regard to the fruit-spraying. We had hoped that this question was settled for all time, but, like Banquo's ghost, it bobs up again. There are more wild theories advanced in regard to this matter than there are about any other subject. It would be very gratifying if some plan could be adopted to remedy this matter effectually."

CONTRIBUTED ARTICLES

No. 2.—A Colony of Bees—How to Make the Most Out of It.

BY "OLD GRIMES."

I WILL suppose in this instance that the bee-keeper desires to make as much advancement as possible and to keep abreast of the times. When I was a boy and lived at Old Grimes' homestead, the box-hive was used exclusively, and I have no doubt my grandfather, Old Grimes, could have written a volume upon the benefits of said hive over the earlier straw-skep or the hollow-log.

But the Grimes family have now moved out more into the center of our Nation, and the progress of bee-culture has moved along also to a more improved management, and tho' like my grandfather, I am called Old Grimes, I have not learned all there is about bee-keeping—there is enough left to the business to keep the younger generation busy improving for a long time.

In article No. 1 the reader has learned that to get the most out of a bee-hive it must be of good material and well made, and the same terms can be applied to the bees that occupy it.

My long experience teaches me that to have a colony do its very best in 1900 I must commence to prepare it in this year 1899. A first requisite is a vigorous race of bees, and for an all-purpose bee I would recommend the Italian. The Carniolan race has within the past few years gained many advocates, but the test of further time will be necessary to allow it to equal the Italian, if it ever does.

In order to get the most out of a colony there is a general consensus in the fraternity of bee-keepers that the prosperity of the colony is centered in the queen; from my own, and the experience of my ancestors, that is all very true, but before the advent of queen-breeding the drone held an equal if not a superior place in the eyes of the apiarist. And why not? In the rearing of a superior race of horses the selection is in the male line, the same in the rearing of all other animals, the same in poultry and other feathered tribes. But in bee-culture the breeding from a superior strain of males is a more difficult problem,

and the energies of the breeder are centered upon the easier problem surrounding the queen.

Not only should queens be reared from colonies showing market desirable traits, but they should be mated to drones not kin, and showing desirable traits. Isolation is so necessary in these cases that the queen-breeder, if he does not altogether ignore the drone factor, relegates it to the background. The future queen-breeder, or the breeder who wishes to compete for the prize of a hundred-dollar queen, must give more attention to the drone, and I guarantee that those colonies of bees that have made phenomenal records were made so from a chance combination of desirable traits. The bee-keeper who desires to get the most from his colony should continually bear in mind that he should leave nothing to chance.

In order to rear good queens I have no further advice than to refer the reader to the books bearing upon that subject, and I regret I cannot refer to a treatise upon drone-rearing, for in the Grimes family it is held in equal importance, and it seems that the only point neglected in this age of progress is the mating of queen and drone thru continued selection and isolation.

Having a good strain of bees, the next requisite for their welfare is a generous master. As a rule, a colony of bees that have been robbed by a penurious owner until they have barely enough stores to last them until spring, will not amount to much unless conditions are exceptionally favorable. The wintering of bees in our cold climate is far from a certainty, and the problem still vexes a great majority of the fraternity. The Grimes family have settled several points in this line to their own satisfaction, and one of the chiefest is an abundance—yes, a superabundance—of good honey for wintering.

Another factor is a cellar of even temperature; and a cellar in porous soil is better than one in clay or hardpan; the latter can be made healthful by digging it deep, and filling in a foot or more of the bottom with stones and providing ample drainage. In order to winter successfully every time, give the bees plenty of ventilation under the brood-chamber, and ample space for all dead bees to drop free from the combs. A rim at least two inches in depth, with several ventilating holes in it covered with wirecloth, should be placed between the bottom-board and brood-chamber for this purpose.

There should be no upward ventilation; loose covers, mats, quilts and cushions have been the cause of the death of more bees than any other cause in wintering, and to hold the heat more effectually in the hive, an even-fitting honey-board should be used, and over this a telescope cover.

The hive-covers of the day are for the most part cheap and flimsy, and the flimsiest of all are those made of many pieces. A cover that merely rests upon the top of the hive with nothing to hold it in position except as the bees glue it, is not worthy the name of cover, and by some is rightly termed a "lid." The long and the short of it is that a cover covers, and a lid does not cover. A lid may answer when the weather is warm and the colony strong, for they are in a condition to close quickly the openings if broken, but in cool weather, or when a super is added, or when a colony is in medium or weak condition, a lid is always loose, and the vitality of the colony in the form of heat is constantly wasting.

The old adage in reference to the preservation of health in a person—"Keep the feet warm and the head cool"—should be reversed in the case of a colony of bees. The cover should cover not only during the winter months, but after the bees are put out upon the summer stand it is more necessary that the upward ventilation should be closed. At this time it is with a colony of bees as with a steam engine—if the engineer sends the steam from boiler to engine thru a defective pipe, he will not get much out of his engine. This principle holds good even in cool nights in the height of honey-gathering, and in any climate, and on this account I call for a radical change in cover construction.

A colony of bees that comes out in the spring with a whoop and a hurrah is a source of pleasure to the generous master, and it requires but little attention; this should be given at proper intervals in order to get that old, dark honey, with which the outside combs are filled, manufactured into brood. This is easiest done by uncapping a comb and inserting it in the center of the brood-nest; but please exercise caution here, for more harm than good is oftentimes done. Never interfere thus violently with the broodnest until there are five or six frames in which there is hatching brood. When the brood-chamber is brimful of bees, put on a half-story extracting-super. I prefer these

half-story supers for many reasons. It takes less heat to warm them; bees get to work in them earlier; the increase is gradual and keeps pace with the increase of bees; the bees will not leave them during cool nights—this is especially the case when a cover is used. If there is dark honey gathered from willows or apple-bloom it is stored here, and this, too, can be converted into brood; give the queen unlimited room until clover is in blossom.

I am now ready to try to get the most out of my colony, but as that operation merges so closely into more than one colony, and having occupied much space in getting up to this point, I shall ask the reader to consider the next article, where I will tell how I get the most out of an apiary.



Painted or Unpainted Hives—Which?

BY C. DAVENPORT.

PROBABLY in few if any other pursuits are there so many conflicting opinions held as there are in bee-keeping in the matter of painting hives. There is a great difference of opinion. One of the oldest and most successful bee-keepers in this State, and a man whose opinion I hold in great respect, is Mr. Theilmann, who is a strong advocate of unpainted hives, and claims that they will last as long or longer than painted ones, but my experience has been directly opposite to his. With me, unpainted hives last only a few years before the wood begins to check, warp and decay; while I have some painted hives that have been in use by myself and others for about 20 years, and they are to-day apparently in nearly as good condition as when new; and last season I had to discard some unpainted ones that had only been made eight years, both the painted and unpainted ones having been used under the same conditions, and usually set in the same yard.

Strange as it may seem at first thought, I have found that the locality makes a great difference about the durability or length of time a hive will last, and even one mile may make a great difference in this respect. My present location is a very hard one on hives. It is in a sort of opening between two high hills to the south and north; a few rods to the west is a very sandy and much-traveled road, and during dry times, when the wind is in the west, as it is much of the time, dust and sand raised by passing teams floats over the yard and settles on the hives, and if there are any cracks in a hive where it can find lodgment, it greatly hastens decay, for the pine dust from sand is very destructive to lumber, as is sand itself.

Probably all know, for instance, that a fence-post set in sandy ground will not last nearly as long as it will in clay or black soil; besides, this yard being on very low ground, the hives are covered with profuse dews at night, and are subject to the glaring sun during the daytime, which makes it much harder on them than if they were on high ground and shaded.

I have had many unpainted hives in this yard warp badly, twist and check in one season, and I do not believe painted or unpainted hives will last here much more than half as long as they would in other places but a short distance away, where I have had yards located.

No less an authority than Mr. Doolittle, and, I believe, Dr. Miller also, claims that bees do better in unpainted hives, for they say that the moisture generated by the bees can escape thru the pores of unpainted lumber. I have used painted and unpainted hives ever since I have kept bees, and have never been able to observe any difference whatever in this respect. I have some hives all parts of which are well painted, both inside and outside, and bees do just as well in them as in hives not painted at all, so far as I can see. But it is far from my intention to dispute what either of these men say, tho, if I did, I am aware that it would not matter, as the opinion of either one of them is as it should be—of more weight than that of any number like myself would be.

The only way I can account for the difference in our experiences is that there must be less, or a different kind of, propolis gathered in their locality from what there is in mine, for here, after a hive has been in use some time, the inside is smoothed and coated over with propolis of such a character that it will hold water as well as a tin dish, so there is no chance for moisture to escape thru the wood if the hives are not painted.

Unless they are kept well shaded during warm weather, white is the best color to paint hives, for without shade during hot weather, when honey may be yielding freely,

bees will be able to work in white hives, when, on account of the heat, they would be driven out of unpainted or dark painted ones.

Linseed oil, white lead and zinc make a good white paint. It is expensive, tho, and is far from being as durable as some of the cheaper kinds of paints, but there is not, so far as I know, anything besides white lead that will give a pure white color.

A great saving can be made, however, by using and first painting hives well with linseed oil and any of the mineral ochres. These are of different colors, but the color does not, I think, matter, as I believe they are all the same thing; but my actual experience has been with what is known to the trade as "red ochre." This can be procured at nearly all places where paint is sold. It is very cheap, and makes a much better and more durable body mixt with linseed oil than white lead and zinc does, and is not, after it is dry, at all offensive to bees.

The painted hives I spoke of as being used 20 years, were painted with this kind of paint, and the paint itself is on most of them in good condition yet, and I believe this paint preserves the wood much better than white lead does. After hives are well painted with this kind of paint that is thoroly dried, they can be painted with white lead and changed to a snow-white color with but small expense comparatively, all cracks, as well the pores of the wood, being filled with the cheaper paint, it takes but a small amount to cover them again. The white paint adheres well to this ochre paint; better, in fact, I believe, than it does to the wood itself. I think that it was 11 years ago that on some of these red hives I painted large numbers with white paint that can still be read rods away.

To obtain the best results with white lead, whether it is used alone or in connection with this ochre paint, I have found that it pays to mix some zinc with it. When the lead alone is used it will last but a short time before it begins to "chalk," as painters say; that is, it flakes and rubs off like whitewash does.

I have heard it said that if lumber were saturated or soaked in a strong solution of lime water it would last much longer. Three years ago I slacked some fresh lime in a barrel, and after the solution had settled I dipt off the clear liquid and soaked a few new unpainted hives in it. While time has not been sufficient to prove whether the lumber will last much longer, I found that hives so treated were not offensive to bees, and I have never observed any moth-worms incrusting on the under side of these bottom-boards, as I have many times found on both painted and unpainted ones.

Southern Minnesota.



Bees and Their Feathered Foes.

BY H. L. JONES.

EDITOR YORK:—On page 450, Prof. Cook mentions that he would like to know how birds manage the stings when they kill worker-bees. I enclose a clipping showing how some of them manage here. I would like Prof. Cook's comments thereon, as it seems almost incredible that birds can be stung thus with impunity. H. L. JONES.
Queensland, Australia.

[The clipping referred to by Mr. Jones is an article written by himself and published in the May, 1899, issue of the Australian Bee-Bulletin, reading as follows:—EDITOR.]

In writing on this subject, I do so as much from a desire to draw information from others, as to throw any new light on the subject myself. We have undoubtedly a good deal yet to learn in this direction. In looking up the writings of various authors in other countries, I find that a large number of different kinds of birds are included in the list of "Enemies of Bees," but as I may have something further to say about this later on, I will confine myself in this article only to birds that have come under my own observation.

The rapacious little martins were the first to introduce themselves to my notice as having a partiality for a bee-diet, and after them came along the magpie—yes, our common, innocent-looking magpie. In 1889, I first observed these at their mischievous tricks, and they came in numbers, too, selected a hive apiece, and gobbled up the bees as if to the manner born. Sometimes they caught the bees on the wing, but in most cases snapt them up as they alighted at the entrance. They carried on in this despicable manner for more than a month, but certainly didn't have it all their

own way, as in the meantime their numbers grew beautifully less—thanks to a reliable shot-gun.

The green oriole has, however, the honor of being the greatest gourmand in this line that I have yet encountered, and its capacity for stowing away bees and stings is simply marvellous. To secure its prey, it sometimes settles on a hive and catches the bees as they fly home; at other times it darts from some convenient perch and takes the bee on the wing; but its most favorite plan is to locate itself in a fruit-tree and either snatch up a bee as it alights on a blossom, or as it flies from flower to flower. In one of these little friends that I shot and made a post-mortem examination upon, I found 15 stings in the stomach, sticking into the lining of it, just like pins in a pin-cushion, some of them being very firmly implanted and imbedded almost up to the head. Another bird had no fewer than 27 stings imbedded in its alimentary canal, and also one sting with its poison-sac attached sticking loosely in its throat at the base of the tongue. I sent on the head and stomach of one of these birds to Mr. H. Tryon, our Government Entomologist, and herewith append his report:

"The bird from which the head was derived that you submitted for examination on July 28, is an example of the green oriole (*Oriolus viridis*), a not uncommon denizen of Brisbane district, especially during the winter months. The portion of its alimentary canal, that you also left for inspection, contained, as you surmised, numerous bee-stings (seven of these were identified by me) that had partly penetrated and were still fixt in its mucous and muscular wall. There also occurred upon the inner lining of the viscus, and upon the bird's tongue also, several hairs that had been derived from the body of a bee. The special features presented by these hairs and stings, when considered together, yielded undoubted evidence that they were derived from honey-bees upon which the bird had fed. The green oriole is well known as being one of those birds that are both frugivorous and insectivorous. It feeds upon figs, mulberries, loquats, various berries, and upon insects generally. I am not aware that it has ever been previously noted, that it includes the honey-bee in its dietary."

Does it not seem an extraordinary thing that birds should be endowed with an immunity from the poison of a bee-sting, when one sting has been known to be sufficient to cause the death of a human being? Some writers, however, maintain that birds eat only drones, others that they extract the sting first, or else swallow the heads only, but these are certainly mistaken, as I have proved times out of number.

In regard to the martins, altho they have paid repeated visits to my apiaries, they have never caused much loss, as on account of a very accommodating habit they possess of perching together in a row, their destruction is easily accomplished. The magpies, however, are among our most valuable insectivorous birds, and I therefore always put up with a good deal from them before resorting to violent measures, in fact it is now several years since I destroyed one, but the gluttonous little oriole is inexorably outlawed and therefore shot on sight, every time.

In conclusion I will mention that I have looked up scores of works, right back as far as 1691, and while most of them accuse certain birds of eating bees, not one writer seems to have made the discovery that the stings may be swallowed with impunity, and may even pierce the walls of the stomach and yet to all appearance have no injurious effect upon the bird.

H. L. JONES.



A General Report for the Season of 1899.

BY J. S. HARTZELL.

ONE year ago I wrote an article for the excellent American Bee Journal and the fraternity of bee-keepers—a report of the product of honey from my apiary and my experience with the Golden system of managing bees for the production of comb honey. Now that the season of 1899 has closed, and with its closing I can but record in large type, FAILURE, I am in no way fitted to make up an account relative to any plan for the production of honey.

The spring of 1899 opened apparently favorable, bees building up rapidly, and were in prime condition for gathering nectar from all sources from which we expect surplus honey stored in sections in this part of country. Poplar, white clover, basswood, sumac and buckwheat all appeared in prime condition, but failed to yield the sweets desired. I do not think I ever witness as dense growth, or as much bloom on white clover in these parts, but all of no avail.

I entered the season with 57 colonies, having lost 3 colo-

nies during winter, and one colony queenless in late fall I doubled up. The product of honey from 57 colonies, spring count, in round numbers was 384 completed sections—an average of not quite 7 sections per colony, and very many light weights, therefore a very meager amount to make comparison of the Golden and general plan; and you know the demoralizing effect on the bee-keeper of having to record failure. Truly, they come too often, in this section of country, at least.

I have been engaged in the business of keeping bees since 1890, and can say truthfully that during the nine years I have not known one that the average yield from spring count of colonies was 50 pounds.

In 1894 I had 39 colonies, spring count, and the yield for that season was 1,500 pounds, which was the best I ever had, taking number of colonies into account, and the product was very superior in quality to any produced before or since. That season one colony produced 112 completed sections of honey, and the colony on scales, during basswood bloom, gained in one day nine pounds, but that for one day only, proving the best ever known in my experience.

My purpose has been, and is at present, to go out of the bee-keeping business, but thus far I must record failure in this, also, owing to my inability to get away from home last winter to dispose of my equipment. And to my great surprise now, I was induced by a proffer made me, to purchase 19 colonies more only a short time since, and now record in the yard 85 colonies, which I will endeavor to dispose of during the winter; and if failure is to be inscribed in this also, I will certainly emigrate to some more favored locality.

Owing to the meager amount of honey secured, the season now closed will not compare results of the Golden and general plans in its production, but I will say that colonies in Golden hives are much the best supplied with stores for winter, and now I have 52 colonies on the Golden plan.

Last winter was the severest ever known here, the thermometer indicating as low as 26 degrees below zero.

Our friend and critic, Mr. R. L. Taylor, criticized and somewhat doubted my statements concerning the report I made of honey produced by the Golden and general plans in the season of 1898, and as I winter my bees on the summer stands I intend giving my experience with this very vital problem in this and many sections of our country, and would request the worthy critic named to explain, if possible, thru the columns of the American Bee Journal, "the why" of the difference or cause of success and failure.

Of 40 colonies wintered in Golden hives, the loss was none; of 20 colonies wintered on the general plan, the loss was 3. By the general plan I mean hives with empty supers on, and cushions of chaff in same, or colonies in winter-cases packed with chaff, and cushions on top. Will Mr. Taylor state which of the two plans he would consider preferable, from the experience as stated?

I have been noticing lately hints of \$100 for a queen-bee—certainly a very generous offer, but if all the qualities stated are embodied in said queen, the amount would in my estimation be a mere pittance for her. However, here is an excellent opportunity for some of our noted queen-breeders to undertake to win the prize (if such it could be called)—I mean the \$100. The queen I fully recognize would be a great prize.

Now, when the queen spoken of is produced, I will take it upon myself to add \$100 more for her, conditionally—if all queens reared from the celebrated one mentioned produce bees that are equally good in disposition and gathering honey.

My experience has proven to me beyond doubt, that there is as much difference in queens and their progeny, altho reared from the same mother-queen, as there is in a family of children from the same parents. No two are of the same temperament or energy, and no two will show equally in prosperity with the same surroundings or in the same locality. Careful observation has imprinted this indelibly on my mind, and I will freely pay a handsome bonus to any one engaged in keeping bees, say of ten or more colonies, where each colony stores an equal amount of honey. This being unknown and impossible, can we reasonably expect the much-talkt of queen to be brought into existence? Once produced, she would certainly be worthy a palace or crown—yes, both. And if I could by any means be informed in regard to time and place, I would certainly attend the ceremonies, and, if necessary, pay an admittance fee.

In conclusion, I will say that last winter's losses of bees to bee-keepers in these parts varied from 3 to 100 percent,

the easy, don't care, go-as-you-please bee-keepers suffering the severest punishment for their carelessness. Experience is said to be a good teacher, but whilst this is true it is rather expensive at times. Another maxim is, "Whatever is worth doing is worth doing well." The latter is most applicable to bee-keepers, especially now. Those who have neglected preparing their bees for the winter's storms should make haste and use the greatest care possible.

Somerset Co., Pa., Nov. 20.



Packing, Grading and Marketing Honey.

BY N. J. COOLEY.

(Read before the Inyo County Bee-Keepers' Association, of California.)

THERE has been much discussion on packing honey, occasioned by an article by Mr. Doolittle, in *Gleanings in Bee-Culture*, in 1898, in which he upheld that it was not dishonest to face cases with white honey and put inferior or dark honey in the body of the case, when sent to commission houses. He was "roasted" on all sides for his views, and letters were sent to commission houses thruout the country by the *American Bee Journal* asking their views. The unanimous verdict was that the bee-keeper got the worst of the deal in every instance when the goods were examined and sold on their merits. Mr. York summed up the whole proposition in these words:

"To face comb honey for market is wrong every time and everywhere."

The question for us to consider is what constitutes "facing." S. T. Fish & Co. instructed me, in repacking honey, to put none but honey of a certain grade in a case, but in putting sections next the glass to put the best and most perfect side out. I believe that facing to that extent is justified and desirable. Peycke Bros. condemn the practice of some producers, of putting good honey on the face but insisting upon slipping in a few imperfectly filled sections, thus placing the whole shipment under suspicion. Producers who put up their goods in this manner not only injure their own reputation but that of every producer in their vicinity.

A traveling-man a few days ago told me that on a visit to Bishop the past fall he was shown some beautiful apples by a rancher who had them for sale. Altho apples were plentiful at his home they were inferior to those exhibited, and thinking that it would be a treat to his family and friends, he ordered a box, and on his arrival home praised in extravagant terms Inyo apples, and the exhibit he would soon make of them. You can perhaps imagine his disgust upon opening the box he had paid a fancy price for, with freight added, to find all but the toplayer hardly fit for hog-feed. That box might have sold 50 others had it been honestly packed, but under the circumstances it may head off many a prospective purchaser.

Hotel keepers at Hawthorne told me they bought their eggs at Omaha because they were better and fresher than those from Inyo.

If we ever expect to obtain a ready and regular market for our products we must stop selling cider-apples, rotten eggs and refuse honey as first-class goods. When people place their coin, confidence and consignments in our hands, they have reason to expect an honest deal, and if they fail to get it they will look elsewhere in making their purchases.

In buying honey last fall I was compelled to insist on some honey being repacked and graded, and to reject some altogether, because of inferior honey being put in that should have been kept for home use and extraction; and still, in one car, upon arrival at destination, there were over 300 cases leaky, mostly caused by defective sections.

Last year there was a shortage in many localities and buyers were not very particular, and the fact of Eastern parties sending their coin here and buying the honey at our doors was accountable in a measure to the short crop in the East. I, as their buyer, tried to impress upon the people here the importance of sending only first-class goods, and thus gain a reputation that would be of benefit to us in the future. One of our business men, who doubted the possibility of making arrangements for a cash sale of our honey, when the deal was consummated said, "It's a godsend to our people, but they don't know it."

I have some letters from Peycke Bros. in answer to letters written them by me, asking their opinion as to cases, grading, shipping, different varieties of sections, prices, etc., which I think will be of interest to you all, and perhaps will enable you more fully to understand their

wants and needs the coming season if you desire to sell to them.

[These letters are too lengthy for publication, but from them the following is taken: "In regard to the quality of honey, on the whole we find it much better than we have had from there in previous years. Still, there is quite a good deal of room for improvement, particularly in the proper grading. As long as your people insist on putting even a few sections of inferior honey in the No. 1 cases, they will always be regarded with suspicion, and they will never be able to make a good, outright sale.... Another season your people will find that they will have to send their honey into market on its merits, and it will behoove them to be very particular in their grading."]

In conclusion, I will add that I believe it pays to clean carefully all honey intended for market; carefully grade and pack in 24-pound section-cases, with wrapping-paper over and under the honey in the cases. Don't use old newspapers. The ink blackens the wood and gives the sections a dirty appearance. Don't put in sections not well filled; the extractor is a good place for them. Don't put in sections unless well fastened to at least three sides and fully capped over. Don't put in honey you would refuse to buy if offered to you over the counter; and, finally, don't nail down the cover with spikes— $\frac{3}{4}$ -inch brads are large enough.

Endeavor to get the reputation that some honey producers in Utah have, of whom a certain commission firm speaks as follows:

"We do not even have to bother about inspecting with them. They know just what we want and know that they will get their money just as soon as their bill of lading gets into our possession. We have shipped five carloads of comb honey from one point this season without having to go near there, and they are the prettiest goods put up anywhere in the United States."

What would be the worth of a reputation like that to the bee-keepers of Owens Valley? It would mean a sure market every season for all the first-class goods we could produce.

There is no fault with the locality. We can produce as fine honey as any place on earth. The trouble lies wholly in the manipulation and the methods adopted in cleaning, grading and packing for market. Let us strive for the reputation, and guard it jealously when obtained.

Inyo Co., Calif., Jan. 25, 1899.

York's Honey Calendar for 1900 is a 16-page pamphlet especially gotten up to create a demand for honey among should-be consumers. The forepart was written by Dr. C. C. Miller, and is devoted to general information concerning honey. The latter part consists of recipes for use in cooking and as a medicine. It will be found to be a very effective helper in working up a home market for honey. We furnish them, postpaid, at these prices: A sample free; 25 copies for 30 cents; 50 for 50 cents; 100 for 90 cents; 250 for \$2.00; 500 for \$3.50. For 25 cents extra we will print your name and address on the front page, when ordering 100 or more copies at these prices.

"**The Hum of the Bees in the Apple-Tree Bloom**" is the name of the new bee-keeper's song—words by Hon. Eugene Secor and music by Dr. C. C. Miller. This is thought by some to be the best bee-song yet written by Mr. Secor and Dr. Miller. It is, indeed, a "hummer." We can furnish a single copy of it postpaid, for 10 cents, or 3 copies for 25 cents. Or, we will mail a half-dozen copies of it for sending us *one new* yearly subscription to the *American Bee Journal* at \$1.00.

Please send us **Names of Bee-Keepers** who do not now get the *American Bee Journal*, and we will send them sample copies. Then you can very likely afterward get their subscriptions, for which work we offer valuable premiums in nearly every number of this journal. You can aid much by sending in the names and addresses when writing us on other matters.

Queenie Jeanette is the title of a pretty song in sheet music size, written by J. C. Wallenmeyer, a musical bee-keeper. The regular price is 40 cents, but to close out the copies we have left, we will mail them at 20 cents each, as long as they last. Better order at once, if you want a copy of this song.

GEORGE W. YORK, Editor.



PUBLISHED WEEKLY BY

GEORGE W. YORK & COMPANY,

118 Michigan St., Chicago, Ill.

ONE DOLLAR A YEAR.



SAMPLE COPY FREE.

[Entered at the Post-Office at Chicago as Second-Class Mail Matter.]

United States Bee-Keepers' Association.

Organized to advance the pursuit of Apiculture; to promote the interests of bee-keepers; to protect its members; to prevent the adulteration of honey; and to prosecute the dishonest honey-commission men.

Membership Fee—\$1.00 per Annum.

EXECUTIVE COMMITTEE—Pres., E. Whitcomb; Vice-Pres., C. A. Hatch; Secretary, Dr. A. B. Mason, Station B, Toledo, Ohio.

BOARD OF DIRECTORS—E. R. Root; E. Whitcomb; E. T. Abbott; C. P. Dadant; W. Z. Hutchinson; Dr. C. C. Miller.

GEN'L MANAGER AND TREASURER—Eugene Secor, Forest City, Iowa.

VOL. 39. DECEMBER 28, 1899. NO. 52.



NOTE—The American Bee Journal adopts the Orthography of the following Rule, recommended by the joint action of the American Philological Association and the Philological Society of England:—Change "d" or "ed" final to "t" when so pronounced, except when the "e" affects a preceding sound.

The Happiest New Year ever known we wish to every reader of the American Bee Journal. May it also be the best year of your life so far.

The Annual Index is a special feature of this number of the American Bee Journal. It will be found very valuable for reference to all who have been careful enough to preserve the numbers as they have come to hand each week during the year. What a variety of subjects have been referred to in just one short year! Truly, the bee is a marvellous creature.

The Thirty-Ninth Volume of the American Bee Journal is completed with this number—nearly two score years have past since it was started by Samuel Wagner, and published in Philadelphia, Pa. A good many changes have occurred since then. Perhaps there are not more than ten of its regular readers who were keeping bees at that time and began then to read it. Nearly all of its old-time readers and contributors have joined the "silent majority," and we of the younger generation are left to carry on the work.

Talking on Bees to School Children.—In The Ruralist for October we find the following endorsement from Mr. J. O. Grimsley, the editor of the department of "Bees and Honey" in that paper:

Commenting on Editor York's "talk about bees" before the public school, the Progressive Bee-Keeper says: "Would it not be a good idea for all of us to follow Mr.

York's plan, and see if we cannot have at least one lecture a year on bees, delivered to the children of our public school?"

Happy thought; it would certainly be an excellent plan which would, if the lectures were by well-informed, practical apiarists, lead to much good, not only to beedom, but to fruit and vegetable growers as well. Passing thru the fields and along the paths around the farm we see a bee working busily from flower to flower. What is it? Like Poe's raven, it is just a bee—nothing more. It is gathering its daily bread—nothing more. Thus goes the soliloquy of the common, everyday passer-by, who has no knowledge of the great work the humble little insect is doing for humanity.

It, with its thousands of co-workers, is laying up in a most attractive form, the most delicious of all sweets, and the purest that man can get. It, with its co-workers, is doing a grand work in the transmission of pollen from one flower to another, thus insuring a development of the fruit or vegetable crop. It, with its co-workers, and the colonies at home, furnishes one of the most interesting subjects for study that the enquiring minds can grasp. Yet it is a bee, only this, and nothing more. Like the sands of the seashore, it is only one among a countless number that is doing a great work while we sit idly by, under the shade of a spreading fruit-tree, wondering why the honey-bee was "made with a sting," and why "it is so ill," never stopping to think—always calling it "high-tempered," when in fact the human family is a thousand times more irritable. It is a bee, nothing more.

But let's all work to the standard, as set by Mr. York, and see to it that each public school gets a lecture on bee-keeping. The students will be benefitted, the county will reap its share, and beedom will be a rich gleaner.

Bee-Paper Publishers as Honey-Buyers.—In the Progressive Bee-Keeper for December, we find the following from F. L. Thompson:

"It is well to remember that the publishers of nearly all the principal bee-papers are also honey-buyers. If they know of sales at good prices that are likely to affect their own interests if generally known, they are NOT GOING TO TELL. It would not be business. No one can expect it of them."

We cannot understand why Mr. Thompson should have written that, unless he judges the publishers of bee-papers from what he knows of himself. But we are glad to be able to say that we are pretty well acquainted with the bee-paper publishers who handle honey, and know that they would not act as Mr. Thompson suggests he would if in their place, namely, *not tell if any honey sales were made at good prices*. We want to say for ourselves that such an insinuation is as untrue as it is unkind. We never have knowingly allowed our own personal interests to interfere with giving everything in the columns of this journal that any responsible and honest bee-keeper has reported to us concerning sales of honey. Certainly, we do not publish everything we know, for if we did, there would be some awful howling, and from just such people as write paragraphs like the above quotation.

So long as we pay the right price to the honey-producer, and he is satisfied, we are not going to worry about what anybody says when talking just to hear himself talk.

A Correction.—Editor Leahy says in the last issue of his paper that we "misrepresented the 'Higginsville' beehive cover" when speaking editorially of bee-supplies for 1900, on page 760. We certainly were not aware that we were misrepresenting anything in the least, and hereby apologize for an unintentional error. We do not wish to do a single individual, or even an apiarian fixture or implement, an injustice, and always feel like expressing our thanks when any one calls our attention to it, if he thinks we have published anything that is not borne out by the facts.

"Honey Calendar" in place of the Almanac—See p. 807.

Index to Volume XXIX.

SUBJECTS.

- Abandoning swarms..... 790
 Adel bees..... 235, 247, 283
 Adulteration..... 35, 74, 291, 313, 328, 372, 376, 389, 392, 552, 584..... 659
 After-swarms..... 500
 Agave Americana..... 305, 388
 Age of combs..... 538
 Albino bees..... 294, 274, 285, 330, 357, 360
 Alfalfa..... 71, 78, 273
 Alfalfa, grasshoppers and bees—their relationship..... 440
 Alley queen-trap..... 658
 Alsike clover..... 421, 490
 Amalgamation..... 194, 201, 248, 280, 343, 605, 654
 Amet-i-an vs. German hives..... 154
 Ammonia for bee-stings..... 517
 Amount of honey to a colony..... 84
 Anger of bees..... 308
 Ants..... 386, 405, 444, 470, 523, 612
 Apiarian exhibits at fairs..... 310, 508
 Apiarian literature..... 408
 Apiarian sermon..... 408
 Apiaries of W. H. Helm..... 801
 Apiary of E. France and Son..... 699
 Apiary of F. G. Herman..... 625, 689
 Apiary of S. T. Fox..... 641
 Apiary of Wm. McLennan..... 641
 Apicultural appliances..... 37
 Apis dorsata..... 40, 53, 120, 168, 194, 213, 216, 218, 229, 248, 324, 377, 392, 408, 419, 457, 502, 519, 632, 696..... 728
 Army in the drum (poem)..... 428
 Arrangement of hives..... 52
 Artificial increase..... 407
 As others see us..... 730
 As we see others..... 730
 Attending bee-conventions..... 393
 Australasian bee-keeper..... 509
 Australian honey-yield..... 10, 808
 Average life of bees..... 198
 Baffling of queens..... 356, 485
 Basswood grown from seed..... 437, 537, 596
 Basswood honey..... 438
 Basswood trees..... 487
 Bear-proof apiary..... 56
 Bee, chicken, and skunk story..... 611
 Bee-escapes..... 90, 106, 151, 811
 Bee-fever that resulted in two apiaries..... 801
 Bee-hive—how to get the most out of it..... 553
 Bee-keepers cause an arrest..... 553
 Bee-keepers controlling the honey-market..... 772
 Bee-keepers' exchanges..... 691, 774
 Bee-keeping as a business..... 75, 152, 163, 434, 628
 Bee-keeping as viewed by an amateur..... 818
 Bee-keeping at experiment stations and horticultural colleges..... 563
 BEE-KEEPING IN—
 Alabama..... 110
 Arizona..... 139
 Austria..... 745
 California..... 307, 482
 Canada..... 594
 Chile..... 361, 684, 729
 Colorado..... 22, 210
 Cuba..... 40, 138, 218, 224, 280, 361, 595, 694, 786
 Great American Desert..... 14
 Greece..... 680
 Illinois..... 136
 In Indian Territory..... 189, 316
 Jamaica..... 122
 Maine..... 123
 Maryland..... 141
 Minnesota..... 701
 Missouri..... 701
 Nevada..... 733
 Oklahoma..... 125
 Paraguay..... 601
 Porto Rico..... 596
 Quebec..... 125
 Southern California..... 120, 451
 Southern Iowa..... 781
 Switzerland..... 9, 217
 Texas..... 232, 613
 The South..... 5
 Towns and villages..... 181
 Utah..... 273, 318, 516, 598
 Vermont..... 375
 Washington..... 231, 485
 Wisconsin..... 547
 Bee-keeping on shares..... 135, 148
 Bee-house..... 106
 Bee-papers..... 8, 136, 484, 520, 632, 793
 Bee-paralysis..... 279, 405, 519, 630
 Bee pasturage..... 340
 Bees and alfalfa..... 4
 Bees and colors..... 339, 538
 Bees and fruit..... 64, 91, 108, 122, 154, 217, 258, 291, 292, 338, 434, 563, 610, 647, 700, 711, 754, 775, 792
 Bees and poultry..... 122, 170, 434
 Bees and sorghum-mills..... 109, 267, 283, 337
 Bees and straw-beds..... 258
 Bees and their feathered foes..... 821
 Bees as fert lizers..... 186, 760
 Bees between house-partitions..... 7
 Bees, birds and grapes..... 616
 Bees breeding in winter..... 503
 Bees carrying water in the fall..... 679
 Bees changing worker-eggs to drone-eggs..... 375
 Bees dying..... 14, 25, 183, 582
 Bees for honey..... 10, 58
 Bees for the children..... 435, 793
 Bees' length of vision..... 611
 Bees in a hollow tree..... 106
 Bees in glass hives..... 519
 Bees in observatory hive..... 535
 Bees in the walls of a house..... 471
 Bees on the ground..... 359
 Bees starving..... 359
 Bees that are huntlers..... 811
 Bee-sting remedy..... 8, 139, 267, 419, 517, 790
 Bee-stings..... 139, 386, 487
 Bees wrong-end-up in the cells..... 470
 Bee-talk at Farmer's Institute..... 133, 146, 165
 Bee-vels..... 42, 230, 570, 715, 806
 Bee-vels..... 711
 Beekeepers in bee-keeping..... 24, 28, 100, 374, 381, 386, 434, 530, 644, 775..... 791
 Best hives..... 503, 663, 679
 Best section-honey super..... 613
 Big yields of honey..... 693
 BIOGRAPHICAL—
 Barber, Mrs. A. J. and son "Flake"..... 481
 Bell, G. W..... 721
 Dadants—three generations..... 465
 Horstmann, Wm. H..... 673
 Huffman, Jacob..... 532
 Leahy, R. B..... 313
 Linswik sisters..... 782
 Murns, F. L..... 593
 Oglesby, J. W..... 423
 Pickard, Miss Ada L..... 449
 Sanford, A. C..... 236
 Selsor, Wm. A..... 689
 Black bees for comb honey..... 218
 Black combs..... 327
 Black drops from bee-smokers..... 340, 678, 776
 Blacks and hybrids in the same hive..... 374
 Blacks and Italians in the same hive..... 470
 Blame it on "the heat" (poem)..... 411
 Blind bee-keeper..... 530
 Bottom-boards..... 486
 Bottom frame-space (Dadant's)..... 38
 Brasilianische Bienenpflege..... 2, 11
 Bravery of bees..... 398
 Breeding in winter..... 73, 250
 Brood-chamber—large vs. small..... 442
 Brood-chambers full of honey..... 215, 231
 Brood-combs..... 440
 Brood-combs with candied honey..... 231
 Brood died as it hatched..... 494
 Brood-frames..... 119, 246, 321, 421, 582, 775
 Brood-nest previous to a honey-flow..... 645
 Brood-rearing..... 37
 Brushing honey into combs..... 236
 Buckwheat honey..... 339, 391, 432, 291, 693
 Building combs..... 3, 60, 4, 5, 4-5
 Bur-combs..... 246
 Caging queens..... 373, 422, 583
 California white-clover honey..... 173
 Canadian pure-honey bill..... 104, 212, 291, 295
 Candied honey..... 283, 490
 Care of queen-cages..... 418, 437
 Care of honey..... 515, 612
 Carrying bees..... 619
 Carrying out dead bees..... 646
 Carrying swarms on a bicycle..... 570
 Catalpa for bees..... 150
 Cellar for wintering bees..... 626
 Century plant..... 305
 Chaff hives..... 451
 Changing hives..... 231
 Christianity in worldly affairs..... 638
 City apiary..... 673, 774
 Cleaning beeswax..... 503
 Cleaning hives..... 193
 Cleaning flight..... 196
 Cleats for shipping cases..... 296
 Cleome honey..... 116
 Clipping queens..... 42, 190, 324, 487, 618, 683
 Clipping queens vs. queen-traps..... 683
 Closed-end vs. loose hanging frames..... 230
 Closed-end vs. open-end frames..... 129, 243
 Clover..... 630
 Cluster shrunk with the cold..... 250
 Coal-tar products..... 746
 Coffee and honey..... 391
 Colonies deserting..... 279
 Colony destroying eggs..... 279
 Colony of bees—how to make the most of it..... 820
 Color irritating bees..... 36, 425, 490, 490
 Color of bees..... 3, 6, 451, 631
 Color of hives..... 239, 324
 Color of honey..... 515, 612
 Comb foundation..... 52, 117, 151, 183, 202, 230, 402, 582, 629
 Comb from black bees..... 214
 Comb honey..... 56, 104, 138, 369, 471, 519, 614, 642, 807
 Comb honey—repairing bruised..... 106
 Comb honey vs. extracted..... 2, 52, 58, 67, 115, 194, 230
 Comb-rack..... 497, 566
 Combs in the hive—which way..... 217
 Combs left with honey in them..... 231
 Combs of honey—caring for..... 247
 Combs vs. foundation..... 10
 Combs wrap in tarred paper..... 405, 487
 Commission men..... 225, 549, 665, 696
 Conqueror (poem)..... 701
 Constipation..... 132
 Constitutional amendments..... 72
 Contraction of the brood-nest..... 70
 Controlling the sex in bees..... 491
 Convention plan..... 201
 CONVENTION REPORTS—
 California Bee-Keepers' Association..... 129
 Central Texas Bee-Keepers' Association..... 613, 629
 Chicago Bee-Keepers' Association..... 161, 181, 212, 228, 325, 341, 357, 454
 Colorado State Bee-Keepers' Association..... 225, 365, 52, 68, 102
 Michigan State Bee-Keepers' Association..... 241
 Northeastern Ohio, Western New York and Northwestern Pennsylvania Bee-Keepers' Association..... 147
 Northern Illinois Bee-Keepers' Association..... 700
 Northwestern Illinois Bee-Keepers' Association..... 347
 United States Bee-Keepers' Association..... 505, 600, 627, 658, 678, 691, 755, 798, 804
 Utah Bee-Keepers' Association..... 389, 819
 Vermont Bee-Keepers' Association..... 291
 Wisconsin State Bee-Keepers' Association..... 277, 289
 Co-operation..... 132
 Cork bee-hives..... 62
 Cost of large hives..... 42
 Covering for brood-frames..... 580
 Covering for hive-roofs..... 519
 Crimson clover..... 206, 374, 490, 601, 633
 Crooked combs..... 58, 594
 Cross colony—getting rid of..... 57, 407, 678
 Current bee-topics..... 454
 Cutting out drone-comb..... 39
 Cyclopean bees..... 307
 Cyprian bees..... 535
 Dadant-Langstroth hive..... 359
 Daisy foundation-fastener..... 87
 Dampness in hives..... 101
 Dandelion tea..... 357
 Danzenbaker hives..... 279
 Dark cappings of sections..... 579
 Dark combs..... 292
 Dead bee (poem)..... 782
 Dead bees on the hive-bottom..... 494
 Dead brood..... 450, 518, 550, 557, 630
 Dead queen at hive-entrance..... 29
 Death from stings..... 42
 DEATH NOTICES—
 Berlebach, Friele V..... 504
 Caroch, John..... 605
 Davis, Mark..... 291
 Muth, August J..... 291
 Travis, Ira B..... 121
 Williams, Jessie..... 122
 Deep frames for wintering..... 647
 Diarrhea..... 119
 Diether theory vs. Dzierzon non-spawn theory..... 74, 122, 801
 Disinfecting foul-broody honey..... 590
 Difference between beeswax and propolis..... 536
 Difference in honey results between colonies..... 594, 727..... 806
 Difference in taste and honey..... 225
 Diseased brood..... 425, 518, 557, 682, 732, 806
 Distinctive foul-broody honey..... 138
 Distance bees go for forage..... 101
 Distance to keep bees from highway..... 182, 359
 Dividing colonies..... 644
 Dividing for increase..... 24, 403
 Division-boards..... 279, 486
 Division-board feeder..... 122, 134
 Do bees freeze?..... 634, 711
 Do bees stay out all night?..... 154
 Does black anger bees?..... 490
 Does loss of sting cause death?..... 40
 Dot diagram contest..... 67, 119
 Double broad-chamber colonies..... 537
 Double-wall hives..... 537
 "Draper's bar"..... 54
 Drawn foundation..... 453, 534
 Drone-brood..... 519, 683
 Drone-cells vs. D. solitile cups..... 442
 Drone-comb in the broad-chamber..... 74, 143
 Drone-comb opposite worker-comb..... 470
 Drone-laying queen..... 453
 Drone-rearing..... 405
 Drones from a drone-layer..... 458
 Duff's bees..... 101
 Dying of old age..... 500, 538, 643, 7-6
 Dzierzon theory..... 101
 Early breeding..... 263
 Early in queen-cells..... 138, 167, 199
 Electrical swarm-notifier..... 194, 215, 327, 362, 407, 547
 Empty combs..... 247
 Enameled cloth..... 424
 England's honey supply..... 34, 41
 Equalizing colonies..... 234, 131, 548, 635
 Eucalyptus..... 706, 812, 813
 Euphorbia..... 724
 Europe vs. America as to honey..... 186, 405
 Examining hives..... 110, 126, 138, 205, 219, 782
 Experience with bees..... 427, 471, 482, 486, 505, 678, 703
 Experimental work in the apiary..... 186
 Extracted honey..... 138, 179, 197, 231, 260, 261, 387, 407, 569..... 614
 Extracting-frames..... 388, 486, 602, 807
 Extracting honey..... 25, 85, 116, 296, 437, 471, 482, 486, 505, 678, 703
 Extractor for shallow frames..... 247, 392
 "Extra fancy" honey..... 618
 Facing hives..... 82, 117, 166, 183, 189, 225, 291, 263
 Fad, fancies and follies in the apicultural world (poem)..... 722
 Fall work in the apiary..... 627, 492
 Farmer bee-keepers..... 204, 355, 731
 Farmer (poem)..... 391
 Farm stock damage an apiary..... 246
 Fashionable honey..... 23, 82, 342, 618, 639
 Fastening foundation..... 549
 Feeding back to finish sections..... 549
 Feeding bees..... 53, 132, 148, 166, 215, 225, 245, 260, 295, 315, 324, 357, 403, 422, 439, 466, 487, 518, 612, 657..... 811
 Feeding caged queens..... 12, 15
 Fences..... 12, 15
 Fences and plain sections..... 134, 186, 242, 302, 602, 760
 Fence separators..... 87, 412
 Fermentation..... 29, 159, 173, 517, 762
 Fertilization of queens..... 375, 471, 589, 678
 Fiber honey-y-pail..... 51
 Field-pens..... 690
 Figwort..... 52, 613
 Finding queens..... 380, 810
 Five-banded bees..... 36
 Flavor in honey..... 15, 235
 Flight of bees..... 279, 408
 Food for larval bees..... 279, 408
 Forage for bees..... 546
 Formic acid for foul brood..... 80
 Foul brood..... 6, 37, 63, 82, 90, 116, 138, 162, 164, 168, 181, 186, 198, 210, 214, 225, 251, 242, 246, 275, 279, 283, 325, 361, 373, 379, 391, 413, 407, 418, 437, 458, 467, 525, 533, 545, 550, 602, 603, 659, 663, 686, 693, 697, 711, 726, 762, 764, 788..... 796, 809
 Foul-brood germs..... 487
 Foul-brood inspector's experience..... 275
 Foul-broody combs..... 391
 Foul-broody honey..... 26, 58, 116, 154, 164, 170, 230, 314, 437..... 778
 Foamation-fasteners..... 101, 119
 Foundation—full sheets..... 402, 487
 Foundation-molds..... 101, 119
 Frames..... 28, 183, 186, 308, 311, 343
 From the egg to the perfect bee..... 579, 678
 Frost in hives..... 296
 Fruit-bloom honey..... 321, 426
 Full sheets or starters—which?..... 321, 426
 Funnel for making nuclei..... 155
 Gathering honey..... 579
 Georgia State Fair..... 345
 German bees..... 49